YEFREMOV, Yu.N.; FROLOV, M.S.

Seminar on the investigation of pulsating and eclipsing variable stars. Per.zvezdy 14 no.1:66-68 Ja '62. (MIRA 17:3)

1. Astronomicheskiy sovet AN SSSR.

YEFREMOV, Yu.N.

Note to the article "Amplitudes of new stars." Per. zvezdy 14 no.2:121 Je '62. (MIRA 17:2)

1. Astronomicheskiy sovet AN SSSR, Moskva.

YEFREMOV, Yu.N.

May novae be classified as binaries? Priroda 51 no.10:106-107 O '62. (MIRA 15:10)

1. Astronomicheskiy sovet AN SSSR, Moskva.
(Stars, Double)

YEFREMOV, Yu.N.

Modulus of distance of the Small Magellanic Cloud. Astron.tsir. no.227:15-16 F '62. (MIRA 16:1)

1. Astronomicheskiy sovet AN SSSR. (Galaxies)

YEFREMOV, Yu.N.

SVS 1359 is a nova with large amplitude or a supernova. Astron.tsir. no.232:2-3 D '62. (MIRA 16:4)

1. Astronomicheskiy sovet AN SSSR.
(Stars, New)

YEFREMOV, Yu.N.

Relationship between the shape of the light curve of Cepheids and their color and luminosity. Astron.tsir. no.232:17-20 D '62. (MIRA 16:4)

1. Astronomicheskiy sovet AN SSSR.
(Cepheids)

YEFREMOV, Yu.N.

Relationship between the degree of unstability of Cepheid periods and their positions on the color-magnitude diagrams. Astron.tsir. no.268:1-2 N '63. (MIRA 17:4)

1. Astronomicheskiy sovet AN SSSR.

CHEBOTAREV, G.A., prof.; YEFREMOV, Yu.N.

Plenums of the Committees of the Astronomical Council. Vest. AN SSSR 33 no.10:105-107 O '63. (MIRA 16:11)

SHAROV, A.S.; YEFREMOV, Yu.N.

Brightness variation of the object identified with the radio source ZS 273. Astron. zhur. 40 no.5:950-952 S-O '63.
(MIRA 16:11)

1. Gosudarstvennyy astronomicheskiy institut im. P.K. Shternberga.

YEFREMOV, Yu.N.

First true radio star. Priroda 52 no.3:97-98 '63.
(MIRA 16:4)

1. Astronomicheskiy sovet AN SSSR, Moskva.
(Radio astronomy)

L 18239-63 EWT(1)/FCC(w)/BDS/ES(v) AFFTC/ESD-3 Pe-4 GW

ACCESSION NR: AP3003328 S/0026/63/000/006/0102/0103

65
62

AUTHOR: Yefremov, Yu. N.

TITLE: Enigmatic supernova

SOURCE: Priroda, no. 6, 1963, 102-103

TOPIC TAGS: supernova SPZ 1359, Palomar Sky Atlas, supernova

ABSTRACT: The information now accumulated on more than 100 extragalactic supernovae have been obtained mainly through the international supernovae service organized by the American astrophysicist Fritz Zwicky, which has lately been discovering 10-20 a year. Because of the immense distances, they are rarely brighter than the 11th-12th stellar magnitude, which does not permit obtaining a spectrum with high dispersion. In 1962, the young Tadzhik astronomer V. Satylvadiyev, in examining old plates, discovered that in September, 1956, a new star had flared up in Ursa Minor, but remained unnoted at that time by the astronomers: magnitude 12.5 by 8 Oct., 6.0 on 24 Sept., down to 11.5 a year later. Now, the collection of star photos of the Gosudarstvenny*y Astronomicheskiy Institut imeni P. K. Shternberga (State Astronomic Institute imeni P. K. Shternberg) contains a large scale plate exposed in May, 1957, showing this star

Card 1/3

ACCESSION NR: AP3003328

with a brightness of about 10.0, not only confirming Satylvadiyev's discovery but also identifying the vicinity of the star (given the provisional designation SPZ 1359--the 1359th discovered in the USSR) on one of the photomaps of the Palomar Sky Atlas showing stars down to 21. It is missing on the map made in 1955, it follows that the amplitude of the variation of its brightness was greater than 15 stellar magnitudes. In only two others have greater variations been observed, but in stars with such great amplitudes the brightness usually drops very rapidly. A graph in the article shows the brightness curve for SPZ 1359, a typical nova SR Lizard 1936, and typical supernova of type I, in galaxy IC4182. The similarity of SPZ 1359 with the latter tends to confirm the Institute's conjecture that it is not a nova, but a supernova. The author is convinced that SPZ 1359 is located on the far edge of our galaxy, since G. Peghernikova, a student of stellar astronomy at Moscow University and his Institute, in her 1961 dissertation, concluded that besides types I and II of supernovae there is a type III, having a considerably lower brightness at the maximum (with absolute magnitudes 10-13) -- a view shared by I. S. Shklovskiy. In view of the visibility conditions, such supernovae must be the most numerous. F. Zwicky also believes there are several types of supernovae (five) differing in brightness. Orig. art. has 1 figure.

L 18239-63
ACCESSION NR: AP3003328

ASSOCIATION: Astronomicheskiy sovet AN SSSR, Moscow (Astronomic Council of the Academy of Sciences)

SUBMITTED: 000	DATE ACQ: 26Jul63	ENCL: 00
SUB CODE: AS	NO REF SOV: 000	OTHER: 000

Card 3/3

YEFREMOV, Yu.N.

First supernovae discovered in the U.S.S.R. Priroda 52 no.7: 106-107 Jl '63. (MIRA 16:8)

1. Astronomicheskiy sovet AN SSSR, Moskva.
(Stars, New)

SHAROV, A.S.; YEFREMOV, Yu.N.

Brightness variations of the object identified with the radio source 3C 273. Astron. tsir. no.240:1 Ap '63. (MIRA 17:6)

1. Gosudarstvennyy astronomicheskiy institut imeni Shternberga i Astronomicheskiy Sovet AN SSSR.

ACCESSION NR: AP4017167 S/0026/64/000/002/0032/0036

AUTHOR: Yefremov, Yu. N.

TITLE: The riddle of hyperstars

SOURCE: Priroda, no. 2, 1964, 32-36

TOPIC TAGS: hyperstar, supergiant star, radio star, radio source, ZS 48, ZS 286, ZS 147, ZS 196, ZS 273, stellar spectrum, extragalactic

ABSTRACT: Surveyed is the recent history of research (much of it done in the USA) on "hyperstars," whose existence, long believed to be impossible, was ascertained "last spring." Account begins with radio source ZS 48, discovered by California astronomers in 1960 and recognized by astronomers as "the first genuine radio star" (Priroda, 1963, No. 3, p. 97). Added to the list since then are: ZS 286, ZS 147, ZS 196 and ZS 273. Identification of the lines in the stellar spectra of these radio stars presented a riddle (unusual combination of absorption and emission lines; absence of hydrogen lines etc.), and attempted interpretations are traced. The sole possibility which emerges is that they are extragalactic objects. They emit more energy than any other objects in the

Card 1/2

ACCESSION NR: AP4017167

Universe (the luminosity of ZS 48 and ZS 273 exceeds that of our Galaxy from 50 to 150 fold, and that of the brightest elliptical galaxies ten-fold), and they do not disappear in several weeks as do supernovae. Their radio emission seems to be caused by processes taking place in the nuclei of galaxies. Hoyle and Fowler (Monthly Notes of RAS, v. 125 , No. 2, p. 169, 1963; article written in Aug. 1962) advanced the hypothesis of "hyperstars" in the nuclei of galaxies -- stellar types with a masses up to 10^8 Solar masses -- as the source of the energy, resulting from the vast quantity of gravitational energy liberated during the compression of a body of such mass. Optical astronomy has supported the theory by providing estimates of the dimensions of ZS 273 and ZS 48. Exceedingly important conclusions follow from the unexpected discovery simultaneously in the USSR (Yefremov and Sharov) and USA (Smith and Hoffleit) of the variability of the brightness of ZS 273. See light curve, presented in Fig. 1 of the Enclosure. The American study, based on more material, found a cycle of about 10 years and, at the same time, less significant fluctuations lasting about a week; from this information, density of the object was estimated to be 10^{-10} g/cm^3 (Smith and Hoffleit), and its dimensions to be not significantly in excess of a light week (Ouk). Another riddle presented by the hyperstars is how the energy, accumulated in the nuclei of galaxies during compression,

Card 2/5 4

ACCESSION NR: AP4017167

is liberated. This should be an intensive explosion-like process, but not a nuclear process, as Hoyle and Fowler initially assumed. The neutrino hypothesis of F. Mishel' (USA) has been demonstrated by Academician Ya. B. Zel'dovich to be hardly possible owing to the effects of the general theory of relativity which have to be taken into account. Whereas the five radio stars now known are apparently early stages of development of great radio galaxies, a later stage in the evolution of such objects may be exemplified in phenomena recently observed in an unusual radio galaxy M 82 by Minds and Sandage (USA), interpreted by them as the first identified case of an hyper-powerful explosion in the central region of a galaxy: this explosion created relativistic electrons which explain the radio emissions and, in part, the optical emission of the system. I. S. Shklovskiy has recently concluded from study of stellar spectra that of all objects in the Universe ZS 196 is the most remote from us (4×10^9 parsecs), and ZS 286 the next most distant. The discovery of hyperstars is comparable in importance to such a fundamental discovery as the detection of the red shift in galactic spectra, and presages a new stage in the development of cosmology. Orig. art. has: 2 figures.

Card 3/4

ACCESSION NR: AP4017167

ASSOCIATION: Astronomicheskiy sovet AN SSSR (Astronomical Council, Academy of Sciences SSSR)

SUBMITTED: 00 DATE ACQ: 12Mar64 ENCL: 01

SUB CODE: AS NO REF SOV: 000 OTHER: 000

Card 4/54

YEFREMOV, Yu.N.

New data on hyperstars. Priroda 53 no.8:112-114 '64.
(MIRA 17:9)

1. Astronomicheskiy sovet AN SSSR, Moskva.

YEFREMOV, Yu.N.

Cepheids in open clusters and period-luminosity relation. (MIRA 17:5)
Astron. tsir. no. 254:1-3 Jl '63.

1. Astronomicheskiy sovet AN SSSR.

YEFREMOV, Yu.N.

Plenum of the Committee on Variable Stars of the Astronomical Council of the Academy of Sciences of the U.S.S.R. Per. zvezdy 14 no.6:441-443 D '63.

Brief summary of present-day data on the period - luminosity relation. Ibid.:444-456 (MIRA 16:5)

1. Astronomicheskiy sovet AN SSSR, Moskva.

YEFREMOV, Yu.N.

Life of stars. Zem.i vsel. 1 no.2:23-31 Mr-Ap '65. (MIRA 18:8)

YAKIMOV, Yu.N.

Variability of the period of BY Cassiopeiae. Astron. tsir. no.271:3-4 D '63. (MIRA 18:10)

1. Astronomicheskiy sovet AN SSSR.

MOSKOVTSEV, A.G.; YEFREMOV, Yu.N.

Working out a network schedule for building a natural gasoline plant. Stroi.truboprov. 10 no.10:14-16 O '65.
(MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut po stroitel'stvu magistral'nykh truboprovodov (for Moskovtsev).
2. Stroitel'no-montazhnoye upravleniye No.44 tresta No.6 kombinata Tatneftestroy, Al'met'yevsk (for Yefremov).

L 21291-66 EWP(e)/EWT(m)/EWP(t)/EWP(k) IJP(c) JD/JW/JG/WB

ACC NR: AP6007908 SOURCE CODE: UR/0149/66/000/001/0116/0118

AUTHOR: Mal'tsev, M. V.; Morozov, L. N.; Zverev, K. P.; Yefremov, Yu. N.

ORG: none

TITLE: Oxidation of beryllium in air at high temperature

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 1, 1966, 116-118

TOPIC TAGS: beryllium, beryllium oxidation, oxidation kinetics

ABSTRACT: Disk-shaped beryllium specimens, 16 mm in diameter and 5 mm thick, cut from hot-compacted and extruded beryllium bars which were vacuum annealed at 850C for 2 hr, were tested for oxidation behavior at 300, 400, 600, 800, 900, 950, or 1000C for 0.5, 1, 5, 10, 30, 60, or 120 min. Visual examination revealed no changes in the surface of tested specimens after 120-min testing at temperatures up to 400C; the surface darkened slightly after testing at 600C, and lost brightness after testing at 800C. A thick white layer easily separated from the surface was formed within 5 min at 1000C. The weight gain (see Fig. 1) in the first period of testing is

Card 1/2 UDC: 669.725:669.094.3

L 21291-66

ACC NR: AP6007908

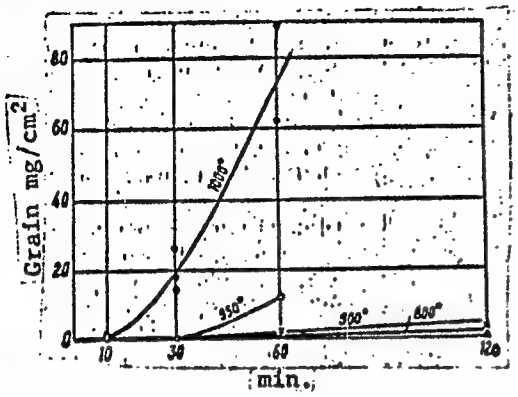


Fig. 1. Effect of temperature and heating time on beryllium oxidation

insignificant because the first oxide film formed protects against oxidation up to 600C. Electron-diffraction analysis showed that no oxide film forms on specimens tested at 300C for 2 hr. Beginning with 400C, an oxide film begins to form. The oxide and the beryllium monoxide have a hexagonal lattice with parameters a = 2.694 Å and c = 4.392 Å. The oxide formed at 600, 800, or 1000C has a coarse-grained structure; the grain size increases with increasing temperature and holding time. Orig. art. has: 2 figures. [AZ]

SUB CODE: 11,07 SUBM DATE: 20Oct64/ OTH REF: 002/ ATD PRESS: 4222

Card 2/2

L 44399-66 EWT(m)/T/EWP(t)/ETI IJP(c) JD/WB

ACC NR: AP6023642 SOURCE CODE: UR/0149/66/000/002/0142/0146

AUTHOR: Mal'tsev, M. V.; Morozov, L. N.; Moiseyev, V. N.; Yefremov, Yu. N.; Khorev, A. I.

ORG: none

TITLE: Comparative oxidizability of various types of titanium alloys upon heating in air

SOURCE: IVUZ. Tsvetnaya metallurgiya, no. 2, 1966, 142-146

TOPIC TAGS: titanium alloy, oxidation kinetics, phase composition, metallographic examination, temperature dependence, diffraction analysis, microhardening / VT14 titanium alloy, VT15 titanium alloy, VT16 titanium alloy

ABSTRACT: A study was made of the oxidizability of titanium alloys VT14, VT15 and VT16, containing various amounts of β-phase. Alloy VT14 contained 4.45% Al, 2.7% Mo and 0.91% V; alloy VT15--3.43% Al, 7.8% Mo and 10.16% Cr; alloy VT16--3.08% Al and 6.3% Mo. Samples (9 × 20 × 20 mm) were heated in air at temperatures ranging from 700 to 1100°C for 10 to 240 min. Oxidizability was determined by the increase in weight per unit surface. The weight curves followed a parabolic law. While the oxidation rate was low for all alloys up to 900°C, above 1000°C it became intense. In comparison with VT14 and VT16 (α+β-structure) the β-phase alloy VT15, beginning at 1000°C,

UDC: 620.193:669.295.5

Card 1/2

L 44295-66

ACC NR: AP6023642

3

oxidized twice as fast due to the presence of the denser Cr_2O_3, absent in VT14 and VT16. Electron diffraction was used to analyze the scales. Chemical compositions of the scale formed at 1100°C for 4 hrs are given. In all alloys, the basic oxide composition was rutile-type titanium dioxide, having a tetragonal lattice with the parameters a=4.58 Å and c=2.95 Å. All the oxides had a texture in which the [001] direction lay in the plane of the sample. A texture formed at 700°C in VT15, at 800°C in VT14 and at 900°C in VT16. Microhardnesses of the surface layers are given as functions of distance from the surface for all temperatures. Micrographs of the oxidized surfaces are shown. For all alloys, the microhardness dropped sharply up to about 0.02 mm from the surface where the slope became more gradual; this indicated the depth of gas diffusion at the surface. The single phased alloy VT15 had a large-grained structure and the gas diffusion was more selective, as was similarly observed in the other alloys upon heating in the β-region. This selective attack increased the crack sensitivity and a fine network of cracks was observed upon deforming VT15 at high temperatures. Below 900°C, VT14 and VT16 had two-phased α+β structures and the oxidation attack was more uniform. Orig. art. has: 3 figures, 2 tables.

SUB CODE: 11,07/ SUBM DATE: 20Oct64

Card 2/2 egh

ACC NR: AP7007606 SOURCE CODE: UR/0030/66/000/010/0099/0100

AUTHOR: Yefremov, Yu. N.

ORG: none

TITLE: Plenary session of the commission on star variables

SOURCE: AN SSSR. Vestnik, no. 10, 1966, 99-100

TOPIC TAGS: star cluster, variable star

SUB CODE: 03

ABSTRACT:

The Fifteenth Plenary Session of the Commission on Variables of the Astronomical Council Academy of Sciences was held in Sverdlovsk during the period 29 June-2 July. A review report on star variables in associations was presented by P. F. Chugaynov. He devoted particular attention to numerous findings of variables of the type *RW* Aur in these young star groupings, still in the stage of gravitational compression, and allowance for the influence of nonthermal radiation, which sometimes substantially distorts the position of such stars on the color-luminosity diagram. Also on this theme were reports on the evolutionary sequence of objects not attaining the initial main sequence (V. S. Shevchenko), on the nature of flares of the type UV Cet (I. G. Kolesnik), on three-color photometry of stars of the type *RW* Aur in associations (L. N. Mosidze), on the results of spectral observations of early irregular variables (T. M. Bartash), and others. B. V. Kukarkin gave a review report on variables in old open and globular clusters. He described the position of variables on the color-luminosity diagrams of these clusters and pointed out that the

Card 1/2

ACC NR: AP7007606

study of variables in them can considerably facilitate understanding of the evolution of stars of small and intermediate masses. Other reports dealt with studies of the shapes of the brightness curves of cepheids of the spherical component (O. P. Vasil'yanovskaya and G. Ye. Yerleksova), star variables in NGC 188, which have proven to be stars of the type W UMa, as postulated by Moscow astronomers in 1964 (P. N. Kholopov and A. S. Sharov), the cluster NGC 6819, first studied by the astronomers of Ural University and found to be one of the few very old open clusters (K. A. Barkhatova). Several communications dealt with stars of the type RR Lyr in globular clusters, including determinations of their luminosity (M. S. Frolov). The numerous reports on eclipsing binaries demonstrated the increasing level of observational and theoretical studies in this field.

[JPRS: 39,180]

Card 2/2

AUTHOR: Yefremov, Yu.P. SOV/115-58-6-7/43

TITLE: Application of Photoelectric Recording of Interference Bands (Primeneniye fotoelektricheskoy registratsii interferentsionnykh polos)

PERIODICAL: Izmeritel'naya tekhnika, 1958, Nr 6, pp 15-17 (USSR)

ABSTRACT: Measurements of plane-parallel terminal gages 1,000 mm long are made on the interferometer developed by VNIIM by means of comparing them with a special calibrating device (Ref. 1). The accuracy of the measurements depends on how well the length of the calibrating device is known during comparison. The calibrating devices consist of steel tubes and are photographed during measurements. A simpler method has been proposed by Baird (Ref. 2). The calibrating device is put in a chamber in which the pressure is changed by a pump. The brilliance of a diaphragm changes with the pressure in the chamber and indicates changes in the interference. The visual method of observation has been replaced here by the photo-electric method of recording. A diagram of the device is shown in Figure 1. The light is emitted by the lamp (1) with the isotope Cd^{114}. As a recording device (15) the automatic recorder type N-16 with a photo-compensation amplifier

Card 1/2

Application of Photoelectric Recording of Interference Bands

on the tube 6F5 is used. For the measurements of terminal gages it is sufficient to determine the interference with an error of only 0.01. Photoelectric recording moves the maximum always in the direction of higher interference. The observed values of interference are therefore always smaller than the real values. The photoelectric method of recording is objective, reliable and fast.
There is 1 diagram, 1 graph and 10 references, 4 of which are Soviet, 4 American, 1 English and 1 French.

ASSOCIATION: VNIIM

SOV/115-59-10-3/29

24 (7)

AUTHOR: Yefremov, Yu.P.

TITLE: Measuring the Halfwidth of Spectral Lines With the Fabry and Perault Interferometer With Photoelectric Registration

PERIODICAL: Izmeritel'naya tekhnika, 1959, Nr 10, pp 7-10 (USSR)

ABSTRACT: The utilization of lines of the infrared part of the spectrum along with lines of the visible part of the spectrum is made possible with the use of photoelectric registration of interference fringes for the measurement of standards with a Fabry and Perault interferometer. Experimental measurements of the semiwidth of certain lines in the near infrared part of the Kr^{86} spectrum were made for possible utilization of these lines for the interferential measuring of the length. As a source of light, a lamp of the Kaesters and Engelgard type with Kr^{86} was used, energized at the temperature of liquid nitrogen by the direct cur-

Card 1/2

Measuring the Halfwidth of Spectral Lines With the Fabry and Perault Interferometer With Photoelectric Registration

rent of 10 mil-amp. Experiments carried out by the author and based on the works of American, German and French scientists are described in detail. In conclusion the author finds that the lines of the near infrared part of the Kr^{86} spectrum can be used for interferential measuring of length, especially when the propagation difference exceeds 500 mm, in case measurements with lines of the visible part of spectrum are hampered or impossible. There are 2 diagrams, 3 tables and 9 references, 2 of which are Soviet, 3 French, 2 English and 2 German.

Card 2/2

YEFREMOV, Yu.P.; KANEVSKIY, Yu.P.

Correction to the dimensions of the exit diaphragm in the photoelectric recording of equal-inclination interference bands. Opt. i spektr. 8 no.2:266-268 F '60. (MIRA 13:10)
(Photoelectric measurements)
(Interference (Light))

VOLKOVA, Ye.A.; YEFREMOV, Yu.P.

Photoelectric measurements of the coefficient of thermal linear expansion of end measures. Izm.tekh. no.4:4-7 Ap '60. (MIRA 13:8)
(Photoelectric measurements)

68897

S/051/60/008/02/025/036

E201/E391

24.2600

AUTHORS: Yefremov, Yu.P. and Kanevskiy, Yu.P.

TITLE: On the Correction to the Dimensions of the Exit Diaphragm in Photoelectric Recording of Equal-inclination Interference Bands

PERIODICAL: Optika i spektroskopiya, 1960, Vol 8, Nr 2, pp 266 - 268 (USSR)

ABSTRACT: All photoelectric devices used to record interference rings of equal inclination have a diaphragm which separates out the central portion of the patterns. Light passed by this diaphragm reaches a photoelectric receiver connected to an amplifier and an automatic recorder. When separations of Fabry-Perot plates are not too small, a change in the order of interference is produced most simply by a change in the pressure of air between etalon mirrors (Refs 1-3). The automatic recorder records a series of consecutive interference orders. Maxima do not, however, occur at integral values of the interference order N but at somewhat larger values $N + \delta\varepsilon$ (the interference bands seem to be displaced towards higher orders). Chabbal (Ref 4)

Card1/3

On the Correction to the Dimensions of the Exit Diaphragm in Photoelectric Recording of Equal-inclination Interference Bands

and Jaffe (Ref 5) found that for a circular diaphragm $\delta\varepsilon = 0.5\Delta$, where $\Delta = td^2/4\lambda f^2$, t is the separation of the etalon mirrors, d is the diaphragm diameter, λ is the wavelength and f is the focal length of the objective. Rank et al (Refs 6, 7) showed that for a narrow slit $\delta\varepsilon = 0.325\Delta$. Rank et al found also that for a square diaphragm $\delta\varepsilon = 0.5\Delta_1$ where Δ_1 represents the value for a circular aperture whose diameter is that of a circle inscribed on a square. The present paper reports results of calculation of $\delta\varepsilon$ for rectangular diaphragms (sides a and b). The results obtained differ from those of Rank et al. For example, if $a = b$, i.e. for a square diaphragm $\delta\varepsilon = 0.64\Delta_1 = 0.32\Delta$, where Δ is defined as $\Delta = t\sqrt{a^2 + b^2}/4\lambda f^2$. The authors determined also experimentally the values of $\delta\varepsilon/\Delta$ for various values of a/b. The technique used was described earlier (Refs 8,9). The yellow-green lines

4

68897

S/051/60/008/02/025/036
E201/E391

On the Correction to the Dimensions of the Exit Diaphragm in Photoelectric Recording of Equal-inclination Interference Bands

of Kr^{86} at 5870 and 5649 Å were employed: the Fabry-Perot etalons were of 47 and 100 mm length. Experimental results are shown in a figure on p 268 in the form of a dependence of $\delta\varepsilon/\Delta$ on a/b . For a square diaphragm the experimental value was $\delta\varepsilon = 0.32\Delta$ in good agreement with the calculated value. For rectangular diaphragms with $a/b = 0.5$, $\delta\varepsilon/\Delta = 0.22$. Extrapolation of the graph to a narrow slit $(a/b) \rightarrow 0$ yielded a value $\delta\varepsilon/\Delta = 0.16$. The latter two values lie within the calculated interval $0.1\Delta < \delta\varepsilon < 0.3\Delta$ for $a \leqslant 0.1b$. There are 1 figure and 9 references, 4 of which are Soviet, 3 English and 2 French.

4

SUBMITTED: July 3, 1959

Card 3/3

BATARCHUKOVA, N.R.; YEFREMOV, Yu.P.

Use of photoelectric recording of interference rings of uniform inclination in measurements of length and wavelengths. Trudy Inst.Kom.stand., mer i izm.prib. no.56:15-26 '61. (MIRA 15:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii im. D.I.Mendeleyeva.
(Interference (Light)) (Length measurement)
(Waves--measurement)

YEFREMOV, Yu. P., Cand. Tech. Sci. (diss) "Investigation of Lines of Near Infra-red Area of Spectrum of Kr^{86} with Purpose of Utilizing Them for Interference Measurements of Length," Leningrad, 1961, 20 pp. (State Optical Inst.) 200 copies (KL Supp 12-61, 267).

BATARCHUKOVA, N.R.; YEFREMOV, Yu.P.; POPOV, G.S.

Krypton tube for the reproduction of the length-unit standard. Izm.tekh.no.8:14-16 Ag '62. (MIRA 16:4)
(Metric system)

L 12899-65 EWT(m)/EWP(c)/EWP(b) Pr-4 ASD(a)-5/APETR/ESD/ESD(gs)/ESD(t)
JD
ACCESSION NR: AP4047184 S/0051/64/017/004/0620/0622

AUTHORS: Yefremov, Yu. P.; Ivashevskiy, S. N. 2

TITLE: Wavelength shift of the Cd-114 lines in the visible region of the spectrum as function of the pressure of argon in a lamp with incandescent electrodes

SOURCE: Optika i spektroskopiya, v. 17, no. 4, 1964, 620-622

TOPIC TAGS: line shift, spectrum line, light source, cadmium, argon, gas pressure

ABSTRACT: The wavelength shifts of four spectral lines were determined by comparing the orders of interference at the centers of equal-slope rings for spectral lines emitted by two incandescent-electrode lamps. The argon pressure in one of the lamps (sealed off) was constant at approximately 1.5 mm Hg (standard lamp), while in the second (investigated lamp) the pressure was varied from 0.5

Card 1/2

L 12899-65
ACCESSION NR: AP4047184

to 40 mm Hg. The remaining excitation conditions (current density and lamp-wall temperature) were maintained constant at 1 A/mm^2 and ~260C). A quartz Fabry-Perot interferometer with gap thickness t = = 47 mm was used for the resolution. The spectra were recorded both photographically and photoelectrically although earlier investigations by various workers of the dependence of the shift on the argon pressure in electrodeless lamps pointed to a linear relation the shift and the pressure, the present results indicate that the shift is more likely to be proportional to the 2/3 power of the pressure. The deviation between the two dependences is probably within the limits of experimental error. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: None

SUBMITTED: 29Jul63 ENCL: 00

SUB CODE: OP NR REF SOV: 001 OTHER: 002

Card 2/2

L 38121-66 EWT(l)/EWP(k)/EEC(k)-2/FBD/T IJP(c) WG

ACC NR: AP6022197 SOURCE CODE: UR/0115/66/000/005/0018/0020

AUTHOR: Yefremov, Yu. P.; Kalinin, N. A.

ORG: none

TITLE: Interference measurements of precision gage blocks by means of a helium-neon laser

SOURCE: Izmeritel'naya tekhnika, no. 5, 1966, 18-20

TOPIC TAGS: gaseous state laser, laser application, interference measurement

ABSTRACT: The results are reported of an application of a Soviet-made OKG-11 He-Ne laser to the interference measurement of precision gage blocks up to 1 m long. The contour of the Ne-line ($\lambda = 0.6328$ μ) and the stabilization and reproduction of this line are discussed. Measured on a conventional (Hg^{198}) interferometer, the average wavelength was $\lambda = 0.63281968$ μ in the normal air (20C, 101325 n/m²; 1333 n/m² H_2O; 0.03% CO_2); the mean square error was $\pm 5 \times 10^{-8}$ μ . It is believed that the He-Ne lasers can be efficiently used for interference measurements of large units of length; the wavelength of each laser must be tested by comparing it either to a Kr^{86}-radiation wavelength or to Kr^{86}, Hg^{198}, Cd^{114} secondary-radiation standards. Orig. art. has: 3 figures and 1 table. [03]

SUB CODE: 13, 20 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 008 / ATD PRESS: 5046

Card 1/1 UDC: 621.375.9:531.714.2:535.417

Yefremov, Yu. V.

USSR/Chemistry - Physical chemistry

Card 1/1 Pub. 147 - 22/26

Authors : Yefremov, Yu. V.

Title : Effect of temperature on the kinetics equation constants of a self-accelerating reaction.

Periodical : Zhur. fiz. khim. 28/1, 174-178, Jan 1954

Abstract : A study of the reaction kinetics during the oxidation of potassium oxalate with potassium permanganate at different temperatures showed that the reaction process is not perfectly and not accurately represented by the N.A. Shilov equations. The curves were found comparatively satisfactory up to the point of maximum rate of reaction after which they become inaccurate. The curves obtained at relatively low temperatures are more accurate than the curves obtained at a higher temperature. Three USSR references (1905-1952). Graphs.

Institution : The D. I. Mendeleyev Chemical-Technological Institute, Moscow

Submitted : June 23, 1952

S/076/62/036/005/003/013
B101/B110

AUTHORS: Yefremov, Yu. V., and Golubev, I. F. (...)

TITLE: Solubility of aminohendecanoic acid in aqueous solutions of alcohol

PERIODICAL: Zhurnal fizicheskoy khimii, v. 36, no. 5, 1962, 986 - 988

TEXT: In conjunction with the production of high-purity ω-aminohendecanoic acid for the synthetic fiber manufacture, its solubility was investigated in water-alcohol mixtures at 20 - 100°C. The crystallized acid was heated in a sealed ampoule with the alcohol dissolved in water until complete dissolution occurred. Results: (1) The solubility of ω-aminohendecanoic acid passes a maximum at 46% by weight of ethanol. (2) The solubility increases rapidly at higher temperatures and reaches 30% by weight at 100°C (in 46% by weight of ethanol). There are 2 figures and 1 table.

ASSOCIATION: Institut azotnoy promyshlennosti i produktov organicheskogo sinteza (Institute of the Nitrogen Industry and of Organic Synthesis Products)

YEFREMOV, Yu.V.; GOLUBEV, I.F.

Surface tension of aqueous solutions of ammonia. Zhur.fiz.khim. 36 no.5:999-1000 My '62. (MIRA 15:8)

1. Gosudarstvennyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza.
(Ammonia) (Surface tension)

YEFREMOV, Yu.V.; GOLUBEV, I.F.

Surface tension at the liquid - gas interface at high pressures.
Zhur. fiz. khim. 36 no.6:1222-1225 Je'62 (MIRA 17:7)

1. Gosudarstvennyy nauchno-issledovatel'skiy i proyektnyy institut azotnoy promyshlennosti i produktov organicheskogo sinteza, Moskva.

L 06469-67 EWP(j)/EWT(m) RM/JW

ACC NR: AP6029211 SOURCE CODE: UR/0076/66/040/006/1240/1247

AUTHOR: Yefremov, Yu. V.

ORG: Moscow Chemical Engineering Institute im. D. I. Mendeleyev (Moskovskiy khimiko-tekhnologicheskiy institut)

TITLE: Density, surface tension, saturated vapor pressure and critical parameters of alcohols

SOURCE: Zhurnal fizicheskoy khimii, v. 40, no. 6, 1966, 1240-1247

TOPIC TAGS: aliphatic alcohol, fluid density, gas density, vapor pressure, surface tension, critical pressure

ABSTRACT: The ten aliphatic alcohols from methyl to decyl were studied. The density was determined from the degree of thermal expansion, and the dependence of the densities (both liquid and vapor) on the critical parameters was found to form two regular curves in reduced coordinates. A regular temperature dependence of the densities of the liquid and vapor phases for the entire homologous series starting from ethyl alcohol was also observed. The critical temperatures, densities, volumes, and surface tensions of the alcohols up to the critical temperatures were determined. By using the graph of the change of density in reduced coordinates, one can find the densities of the liquid and vapor phase for other alcohols of the homologous series. The relationship between the surface tension and viscosity and the dependence of these quanti-

Card 1/2 UDC: 541.11

L 06459-67

ACC NR: AP6029211

ties on the energy of the hydrogen bonds of the alcohols are demonstrated. Author thanks Prof. S. V. Gorbachev for useful suggestions and interest in this work. Orig. art. has: 4 figures, 4 tables and 1 formula.

SUB CODE: 07/ SUBM DATE: 30Oct64/ ORIG REF: 008/ OTH REF: 013

Card 2/2

YEFREMOV, YU. YA. and SAMUYLOV, F. D.

"Utersuchungen zum Wasseraustausch und zum Zustand des Wassers in Pflanzen mit Hilfe von schwerem Wasser (HDO)."

Report presented at the 2nd Conf. on Stable Isotopes.
East German Academy of Sciences, Inst. of Applied Physical Material
Leipzig, GDR 30 Oct - 4 Nov 1961

SAMUILOV, F.D.; YEFREMOV, Yu.Ya.

Studying water metabolism in plants with the aid of heavy water (D_2O). Fiziol.rast. 9 no.4:438-445 '62. (MIRA 15:9)

1. Biology Institute of Kazan Affiliate of U.S.S.R. Academy of Sciences and Organic Chemistry Institue, U.S.S.R., Academy of Sciences, Kazan.
(WATER METABOLISM) (DEUTERIUM) (PLANTS--METABOLISM)

YEFREMOV, Yu.Ya.; BIKULATOV, T.A.; TEYTEL'BAUM, B.Ya.

Reconstruction of an isotopic mass spectrometer to make it suitable for chemical investigations. Prib. i tekh. eksp. 8 no.6:180-181 N-D '63. (MIRA 17:6)

1. Institut organicheskoy khimii AN SSSR, Kazan'.

ARBUZOV, B.A.; YEFREMOV, Yu.Ya.; TAL'ROZE, V.L.

Mass spectroscopy of the oxides of some bicyclic terpenes.
Dokl. AN SSSR 158 no.4:872-875 O '64.
(MIRA 17:11)

1. Institut organicheskoy khimii AN SSSR, Kazan', i Institut khimicheskoy fiziki AN SSSR.

YEFREMOV-LARIN, A.

25325 YEFREMOV-LARIN, A. Organizatsiya i itaniya letnogo sostava. Tyl i snabzheniye vooruzh. Sil, 1948, No. 7, S. 31-34.

SO: Letopis'Zhurnal, Statey, No. 30, Moscow, 1948

YEFREMOVA, A.

Modification of leukocyte count in scarlet fever following penicillin therapy. Suvrem. med., Sofia 5 no.7:100-105 1954.

1. Iz Katedrata po infektsiozni bolesti i epidemiologii pri Med. akademiia V.Chervenkov, Sofiia (dir. katedrata: prof. P.Verbev)

(PENICILLIN, effects,
on leukocyte count in scarlet fever)
(LEUKOCYTE COUNT, effect of drugs on,
penicillin, in scarlet fever)
(SCARLET FEVER, therapy,
penicillin, eff. on leukocyte count)

YEFREMOVA, A.

BULGARIA / Microbiology. Microbes Pathogenic for Man and Animals. General Problems. F

Abs Jour : Ref Zhur - Biologiya, No 6, 1959, No. 24042

Author : Pisarev, S. I.; Yefremova, A.; Kiprov, D. I.
Inst : Medical Institute of Bulgaria
Title : Serological and Bacteriological Investigations in Experimental Myocarditis in a Dog

Orig Pub : Izv. Med. in-ti. Bolg. AN, 1957, kn. 14, 187-203

Abstract : No abstract given

Card 1/1

VERBEV, P.Ye.; PODVARZACHEVA, A.; YEFREMOVA, A.; GYBEV, Ye.; IVANOV, N.; SELEKTAR, A.; KILIMOVA, Ye.; STAYKOVA, A.; KRYSTEV, T.

Studies on epidemiological and clinical aspects of epidemic hepatitis in Bulgaria. Zhur.mikrobiol.epid.i immun. 31 no.9:96-101 S '60. (MIRA 13:11)

(BULGARIA--HEPATITIS, INFECTIOUS)

YEFREMOVA, A.

A patent office at the plant. Izobr. i rats. no.8:24 Ag '61. (MIRA 14:9)

1. Korrespondent zhurnala "Izobretatel' i ratsionalizator", g. Gor'kiy.

(Gorkiy--Patent licenses)

YEFREMOVA, A.

Using electronic calculating machines for processing original statistical information in the field of the supply of materials and equipment. Biul. nauch. inform.: trud i zar. plata 5 no.9: 22-29 '62. (MIRA 15:10)

(Industrial procurement—Statistics)
(Electronic calculating machines)

YEFREMOVA, Alla

It was an ordinary apartment. Zhil.-kom.khoz. 11 no.6:4, 33 Je '61. (MIRA 14:7)

(Housing management)

YEFREMOVA, Anna Ignat'yevna; Geroy Sotsialisticheskogo Truda; IVANOVA, Anna Dmitriyevna; KOMAROVA, T.F., red.; ATROSHCHENKO, L.Ye., tekhn.red.

[In the struggle for the seven-year plan; from the work practice of the Kirov Collective Farm, Shilovo District, Ryazan Province] V bor'be za semiletku; iz opyta raboty kolkhoza imeni Kirova Shilovskogo raiona Riazanskoi oblasti. Moskva, Izd-vo "Znanie," 1960. 30 p. (MIRA 13:5)

1. Predsedatel' kolkhoza imeni Kirova Shilovskogo rayona Ryazanskoy oblasti (for Yefremova).
(Collective farms)

YEFREMOVA, Anna Ignatiyevna, Geroy Sotsialisticheskogo Truda; KURLYANDSKAYA, S.V., red.; POPOV, N.D., tekhn.red.

[In response to the appeal of Lenin's party; a collective-farm woman, who participated in the December Plenum of the Central Committee of the CPSU, tells her story] V otvet na prizyv leninskoi partii; rasskaz uchastnika dekabr'skogo Plenuma TsK KPSS. Moskva, Izd-vo "Sovetskaia Rossiia," 1960. 34 p. (MIRA 14:4)

1. Predsedatel' kolkhoza imeni Kirova Shilovskogo rayona (for Yefremova).
(Ryazan Province--Agriculture) (Women as farmers)

YEFREMOVA, A.I.

Case of benign tumor of Vater's ampulla. Khirurgiia 39 no.10:119-120 O '63. (MIRA 17:9)

1. Iz kafedry fakul'tetskoy khirurgii (zav.-dotsent M.D. Ponomarev) Novosibirskogo meditsinskogo instituta i 1-y Klinicheskoy bol'nitsy (glavnyy vrach I.Ye. Braylovskiy) Novosibirsk.

A L 11525-66 EWT(m)/EWP(j)/T RPL WW/RM

ACC NR: AP6001876 SOURCE CODE: UR/0190/65/007/012/2172/2173

4/5

AUTHORS: Rozenberg, B. A.; Yefremova, A. I.; Yenikolopyan, N. S.

44,55 44,55 44,55

B

ORG: none

TITLE: A new method for preparation of random, block polymers and graft polymers

SOURCE: Vysokomolekulyarnyye soyedineniya, v. 7, no. 12, 1965, 2172-2173

TOPIC TAGS: polymer, polymerization, copolymerization, block copolymer, graft copolymer, copolymer, chain reaction polymerization

44,55

ABSTRACT: This investigation is an extension of work on heterochain copolymers, previously published by B. A. Rozenberg, Ye. B. Lyudvig, A. R. Gantmakher, and S. S. Medvedev (Vysokomolek. soyed. 7, 188, 1965). It was shown that random, block, and graft polymers may be synthesized using a chain transfer mechanism in which a chain transfer occurs from a heterochain copolymer to the growing polymer. Experiments were carried out on the following pairs of polymers: polydioxolane - polyoxymethylene (random or block copolymer); polytetramethylenoxide - polyoxymethylene (graft copolymer); polyvinylbutyl ester - polyoxymethylene (random or block copolymer); polydioxolane - poly-(3,3-bis-(chloromethyl) oxacyclobutane (random or block copolymer); polyvinylbutyl ester - poly-(3,3-bis-(chloromethyl) oxacyclobutane (graft copolymer). Orig. art. has: 1 table.

SUB CODE: 07,11/ SUBM DATE: 04Jun65/ ORIG REF: 001/ OTH REF: 003

UDC: 541.64

Card 1/1

YEFREMOVA, Anna Ignat'yevna; LEONOV, S.A., red.; TRUKHINA, O.N., tekhn.red.

[Let's make new advances in the seven-year plan] Voz'mem novye rubezhi semiletki. Moskva, Gos.izd-vo sel'khoz.lit-ry, 1960. 45 p. (MIRA 13:10)
(Shilovo District--Collective farms)

MALINOVSKIY, M.S.; SOLOMKO, Z.F.; TESLENKO, Ye.P.; YEFREMOVA, A.L.

Sulfanilides. Part 1: N-sulfonyl-arylglycine-dialkylamide. Zhur.ob.khim. 32 no.3:726-728 Mr '62. (MIRA 15:3)

1. Dnepropetrovskiy gosudarstvennyy universitet.
(Sulfanilide)

GRUSH, D.B.; YEFREMOVA, A.M.; NEPOMNYASHCHIY, V.; TORUNTSOVA,L.

[Such people conquer; leading workers in the construction of the Nazarovo State Regional Electric Power Plant] Takie pobediat; o peredovikakh stroitel'stva Nazarovskoi GRES. Krasnoiarsk, Krasnoiarskoe knizhnoe izd-vo, 1961. 89 p. (MIRA 18:5)

VAKULOV, K.V.; YEFREMOVA, A.S.; MIKHEYENKO, A.K.

Repair and reconstruction of semiacid refractory laying of compartment ovens at the "Slantsy" combine. Trudy VNIIT no.10:29-43 '61. (MIRA 15:3)

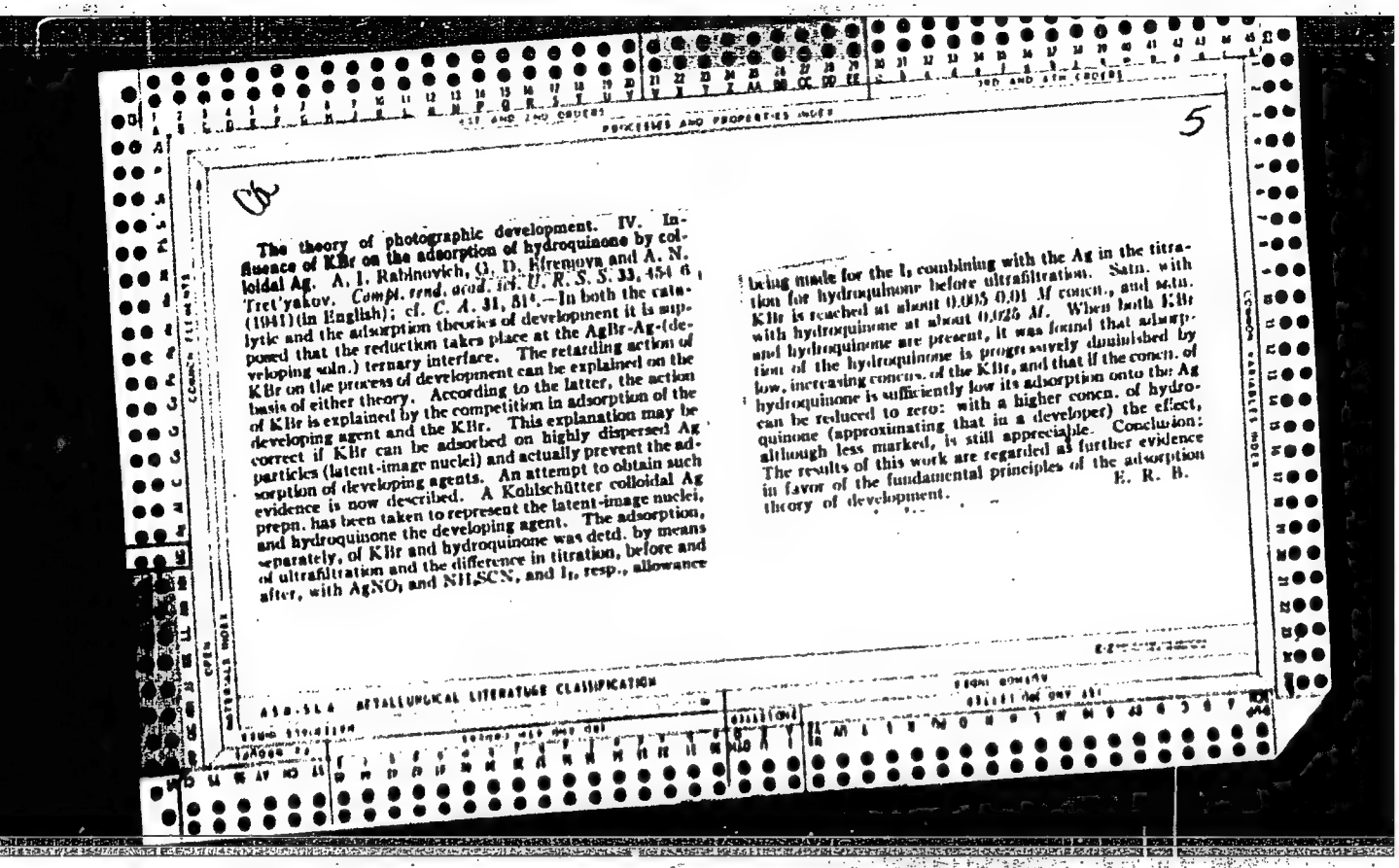
(Ovens)

KAGANOVICH, I.N.; Prinimali uchastiye: BALABANOVA, R.A.; YEFREMOVA, D.A.

Effect of deformation conditions on the properties of titanium alloys with a mixed structure. TSvet. met. 37 no.9:81-84 S '64. (MIRA 18:7)

YEFREMOVA, G.D.

Results of palynological studies of Permian sediments in the Kama Valley portion of Perm Province. Trudy VNIGNI no.37:73-76 '63. (MIRA 16:8)



5

The theory of photographic development. IV. Influence of KBr on the adsorption of hydroquinone by colloidal Ag. A. I. Rabinovich, O. D. Efremova and A. N. Tret'yakov. *Compt. rend. acad. sci. U. R. S. S.* 33, 454-6 (1941)(in English); cf. *C. A.* 31, 814.—In both the catalytic and the adsorption theories of development it is supposed that the reduction takes place at the AgBr-Ag-(developing soln.) ternary interface. The retarding action of KBr on the process of development can be explained on the basis of either theory. According to the latter, the action of KBr is explained by the competition in adsorption of the developing agent and the KBr. This explanation may be correct if KBr can be adsorbed on highly dispersed Ag particles (latent-image nuclei) and actually prevent the adsorption of developing agents. An attempt to obtain such evidence is now described. A Kohlschütter colloidal Ag prepn. has been taken to represent the latent-image nuclei, and hydroquinone the developing agent. The adsorption, separately, of KBr and hydroquinone was detd. by means of ultrafiltration and the difference in titration, before and after, with $AgNO_3$ and NH_4SCN, and I_2, resp., allowance being made for the I_2 combining with the Ag in the titration for hydroquinone before ultrafiltration. Satn. with KBr is reached at about 0.005-0.01 *M* concn., and satn. with hydroquinone at about 0.025 *M*. When both KBr and hydroquinone are present, it was found that adsorption of the hydroquinone is progressively diminished by low, increasing concns. of the KBr, and that if the concn. of hydroquinone is sufficiently low its adsorption onto the Ag can be reduced to zero: with a higher concn. of hydroquinone (approximating that in a developer) the effect, although less marked, is still appreciable. Conclusion: The results of this work are regarded as further evidence in favor of the fundamental principles of the adsorption theory of development.

E. R. B.

YEFREMOVA, G. D. Cand. Chem. Sci.

Dissertation: "Phase and Volume Relations in Liquid-Gas Systems Under High Pressures." Sci Res Order of the Labor Red Banner Physicochemical Inst imeni L. Ya. Karpov, 27 Jun 47.

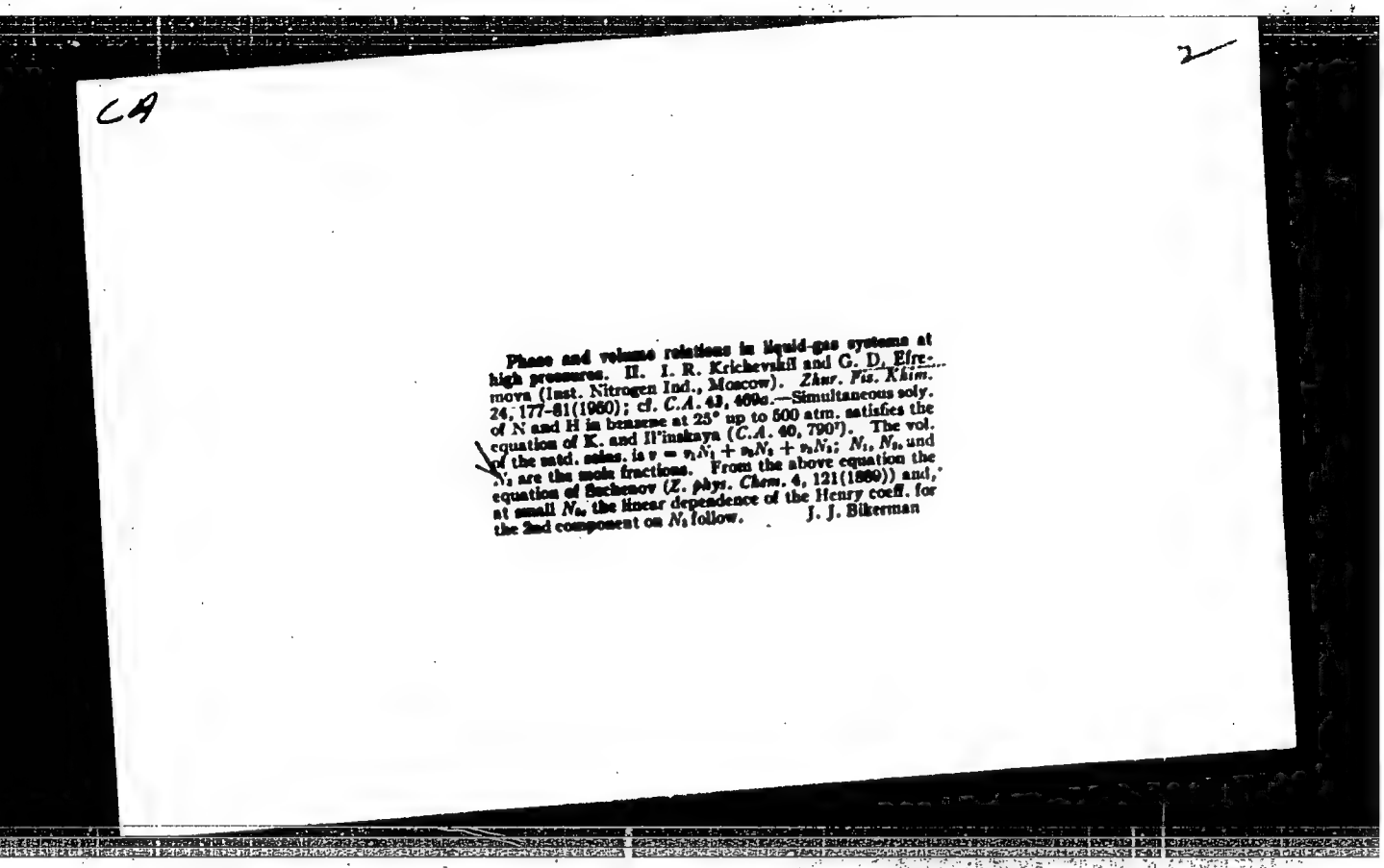
SO: Vechernyaya Moskva, Jun, 1947 (Project #17836)

PROCESSES AND PROPERTIES INDEX

Phase and volume relations in liquid-gas systems at high pressures. I. R. Krichevskii and G. D. Efremova.—*Zhur. Fiz. Khim.* (J. Phys. Chem.) 22, 1116-25(1948).—An app. is described for measuring the soly. of gases in liquids and the d. of satd. and unsatd. solns. at high pressures. The mole fraction $n \times 10{,}000$ of satd. solns. of N_2 in benzene at 25° is at [illegible], 49.4, 97.8, 142, 194, 257, [illegible], 476, [illegible], [illegible], and 775 atm. 116, 204, [illegible], 547, 717, [illegible], 1000, [illegible], [illegible], 1640, and 1910, resp. For H_2 at 25° in benzene it is at 49.4, 97.8, 196, [illegible], [illegible], 281, 294, [illegible], 420, 454, and 487 atm. 114, 228, 436, 509, 520, 608, 642, 851, 904, [illegible], and 1080, resp. These values satisfy the equation of K. and Il'inskaya (*C.A.* 40, 7907). The partial mol. vols. of H_2 and N_2 in benzene are at 49.4 atm. 34.6 and [illegible], and at 776 atm. 27.8 and 44.5 cc. They are independent of the degree of satn. and are linear functions of pressure. At a const. temp. the mol. vol. V of satd. solns. is $V = V_0 + Bn$; V_0 is the mol. vol. of the solvent at its vapor pressure and B is a const. This equation is valid also for some literature data, e.g., Reamer, *et al.*, *C.A.* 37, [illegible].

J. J. Bikerman

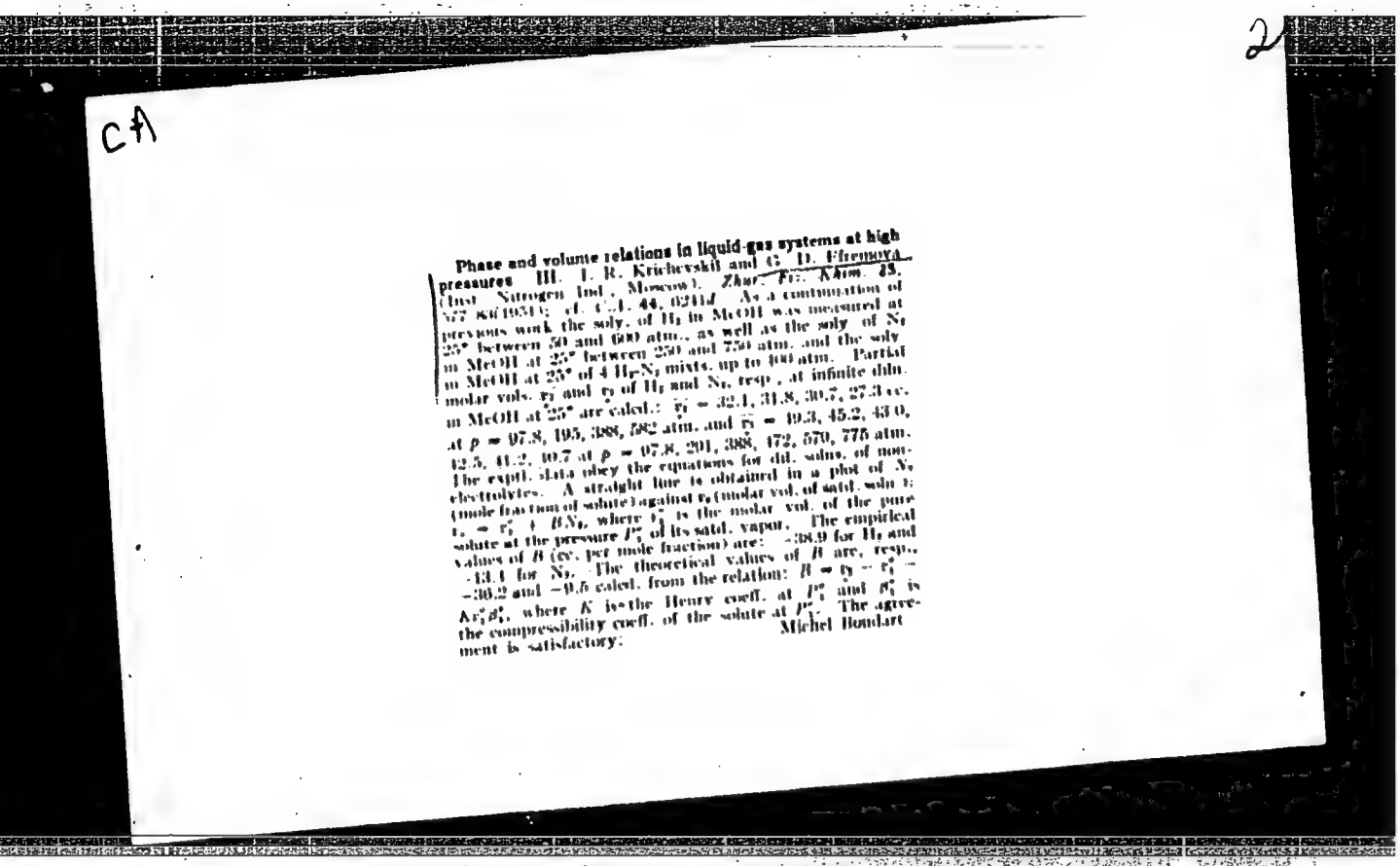
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



CA

2

Phase and volume relations in liquid-gas systems at high pressures. II. I. R. Krichevskii and G. D. Efremova (Inst. Nitrogen Ind., Moscow). *Zhur. Fiz. Khim.* 24, 177–81(1950); cf. *C.A.* 43, 4606a.—Simultaneous soly. of N and H in benzene at 25° up to 500 atm. satisfies the equation of K. and Il'inskaya (*C.A.* 40, 790f). The vol. of the satd. solns. is $v = v_1N_1 + v_2N_2 + v_3N_3$; N_1, N_2, and N_3 are the mole fractions. From the above equation the equation of Sechenov (*Z. phys. Chem.* 4, 121(1889)) and, at small N_3, the linear dependence of the Henry coeff. for the 2nd component on N_3 follow. J. J. Bikerman

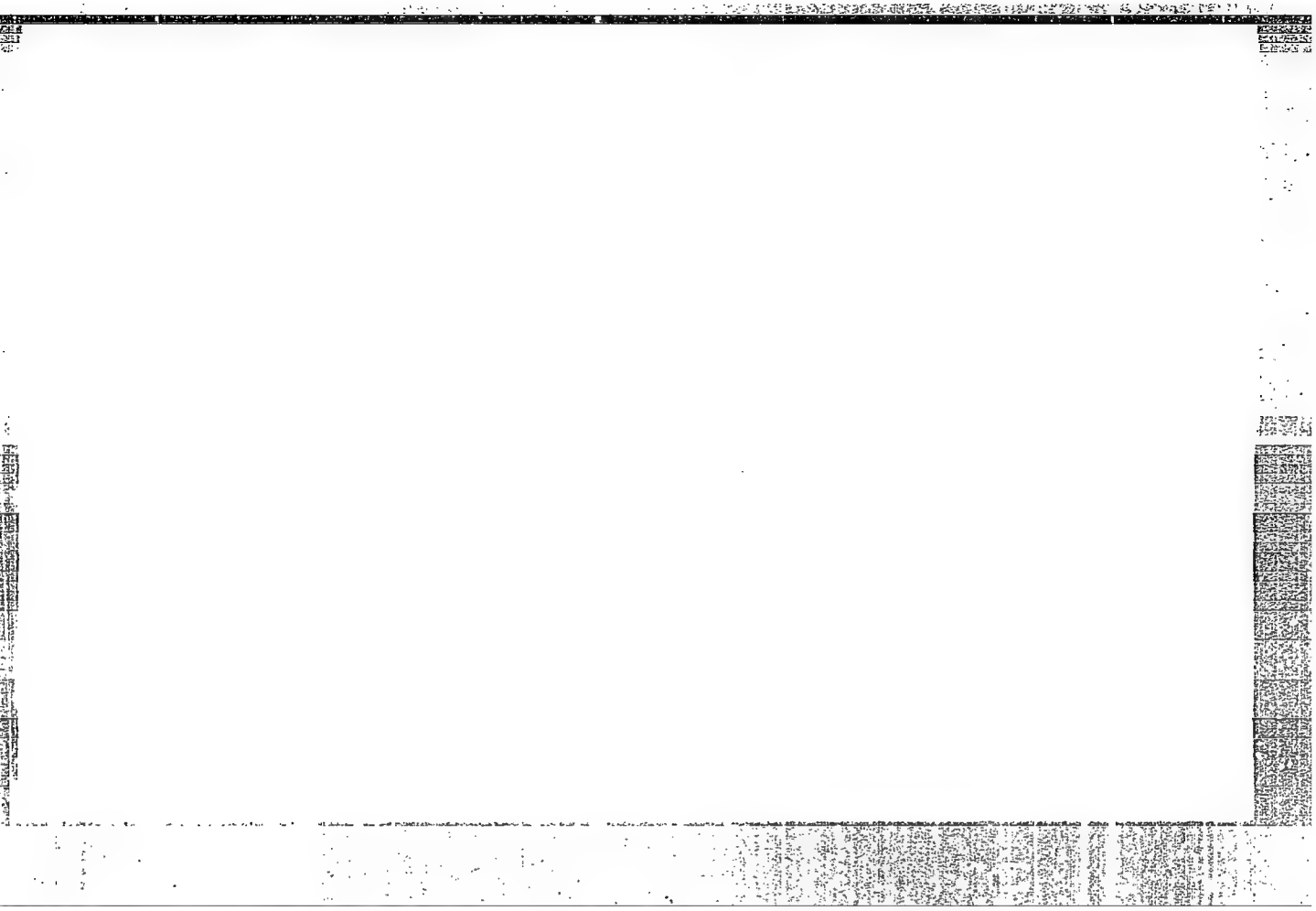


CA

2

Phase and volume relations in liquid-gas systems at high pressures III. I. R. Krichevskii and G. D. Efremova. (Inst. Nitrogen Ind., Moscow). *Zhur. Fiz. Khim.* 23, 307–86(1949); cf. *C.A.* 44, 6214*d*. As a continuation of previous work the soly. of H_2 in MeOH was measured at 25° between 50 and 600 atm., as well as the soly. of N_2 in MeOH at 25° between 250 and 750 atm. and the soly. in MeOH at 25° of 4 H_2-N_2 mixts. up to 600 atm. Partial molar vols. $\bar{v}_1$ and $\bar{v}_2$ of H_2 and N_2, resp., at infinite dilu. in MeOH at 25° are calcd.: $\bar{v}_1^\infty$ = 32.1, 31.8, 30.7, 27.3 c.c. at p = 97.8, 195, 388, 582 atm. and $\bar{v}_2^\infty$ = 49.3, 45.2, 43.0, 42.5, 41.2, 40.7 at p = 97.8, 201, 388, 472, 570, 775 atm. The expt. data obey the equations for dil. solns. of non-electrolytes. A straight line is obtained in a plot of N_2 (mole fraction of solute) against v_1 (molar vol. of satd. soln.): $v_1 = v_1^\circ + BN_2$, where v_1° is the molar vol. of the pure solute at the pressure p_2° of its satd. vapor. The empirical values of B (cc. per mole fraction) are: −38.9 for H_2 and −33.1 for N_2. The theoretical values of B are, resp., −30.2 and −9.5 calcd. from the relation: $B = \bar{v}_2^\infty - v_1^\circ - RT\kappa_1^\circ$, where K is the Henry coeff. at p_2° and κ_1° is the compressibility coeff. of the solute at p_2°. The agreement is satisfactory.

Michel Boudart



APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R001962420004-3"

Phase and volume relations in liquid gas systems at high pressures. IV. R. Krichevskii and G. D. Efremova. *Zhur. Fiz. Khim.* 26, [illegible] (1952) [illegible] 46 [illegible]. The vol. and phase relations were studied at 25–50° and at 100–800 atm. for the N-liquid NH_3 system and at 25–70° and 100–800 atm. for the H-liquid NH_3 system. The soly. and the partial molar vol. of N and H in liquid NH_3 were detd. These systems obey the equations for dil. nonelectrolytes. The const. for these equations, Henry coeff., was detd. by least squares. J. Rovtar Leach

APPROVED FOR RELEASE: 09/19/2001 CIA-RDP86-00513R001962420004-3"

EFREMOVA, G. D.

USSR

Phase and volume correlations in liquid gas systems at high pressures. V. The ammonia-methane system. K. R. Krichevskii and G. D. Efremova. *Zhur. Fiz. Khim.* 27, 1632–9(1953); cf. *C.A.* 49, 9928e.—The solv. of methane (I) in liquid NH$_3$ (II), the solv. of II in I and the molar vols. of unsatd. solns. of II in I were detd. at 25 and 40° under pressures from 98 to 725 atm. Data are tabulated, as are the partial molar vols. of I dissolved in II (f_2); the Henry coeffs. for the latter at 25 and 40° are 2370 and 1910 atm. per unit mole fraction, resp. These values are in accord with those calcd. by means of the equation

$$RT \ln (f_2/N_2) = RT \ln K(p_1^0, T) + \int_{p_1^0}^{p} v_2 dp - A(1 - N_1),$$

where f_2, N_2, $K(p_1^0, T)$, and A are volatility of dissolved I, mole fraction of the latter, Henry coeff. for vapor pressure of satd. II, and a const. equal to 105,000 and 117,000 cm.^{3}/atm. at 25 and 40°, resp. J. W. Loweberg, Jr.

YEFREMOVA, G.D.

D-3

USSR/Statistical Physics - Thermodynamics.

Abs Jour : Referat Zhur - Fizika, No 5, 1957, 11427

Author : Krichevskiy, I.R., Yefremova, G.D.

Inst : Institute of Nitrogen Industry, Moscow

Title : Setup With Visual Observation for the Investigation of Phase Equilibriums and Volume Relations in Gas and Liquid Systems.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 8, 1877-1879

Abstract : A setup is described, which permits an investigation of the phase equilibriums and volume relations in gas and liquid systems, and in particular, permits determination of the solubility of liquids in liquids, of the compressibility of liquid and gas systems, and an investigation of the critical phenomena in liquid-gas systems and liquid-liquid systems. The working space is the internal cavity

Card 1/2

USSR/Statistical Physics - Thermodynamics D-3

Abs Jour : Ref Zhur - Fizika, No 5, 1957, 11427

(diameter 4 -- 5 mm) of a thick-wall glass tube, open on both ends. The upper and lower ends of the tubes are filled with mercury. Measurements of the mercury levels (or of the liquid levels) are carried out visually. The construction makes it possible to carry out investigations at pressures up to 100 -- 120 atmos.

Card 2/2

YEFREMOVA, G.D.

AUTHOR KRICHEVSKIY I.R., YEFREMOVA G.D., LEONT'YEVA G.G. PA - 2760

TITLE On thermal stability of complexes formed by urea with organic compounds.
(O termicheskoy ustoychivosti kompleksov mocheviny s organicheskimi veshchestvami.- Russian)

PERIODICAL Doklady Akademii Nauk SSSR 1957, Vol 113, Nr 4, pp 817-819
(U.S.S.R.)
Received: 6/1957 Reviewed: 6/1957

ABSTRACT Urea forms crystalline complexes with nearly all types of organic compounds that have a straight chain: hydrocarbons, ethers, aldehydes, acids, alcohols, etc. The opinion prevails that at temperatures of more than 132,7°, i.e. at the melting point of urea, these complexes cannot exist. Although no such complexes have hitherto been discovered, it is nevertheless unexplainable from a thermodynamic point of view why 132.7° should be the upper limit for the existence of such a complex. Thermal constancy increases with the length of the chain of organic compounds. The thermal constancy of a complex obtained from a mixture of organic substances is higher than that which is due to individual compounds forming a mixture. On their search for complexes that are constant at temperatures of more than 132,7°

CARD 1/ 3

On thermal stability of complexes formed by urea with organic compounds.

the authors therefore carried out experiments with paraffin and ceresin, i.e. with multicomponet mixtures consisting on the whole of long-chain hydrocarbons of the paraffin series. They were synthetized with urea in a sealed glass tube. The urea complexes with ceresin of different types are constant at temperatures that are higher than the melting point of urea (up to 141° in the case of ceresin Nr. 3). This constancy could also be checked by studying the equilibrium between the complex and urea in unsaturated solutions of the latter. In aqueous solutions the thermal stability of the complex is dependent on the concentration of urea in the solutions. In order to be able to judge the constancy of the complex at temperatures of more than 132,7° it would be necessary to follow the course of the temperature curve. As a solvent liquid ammonia was used, as water is not suited for the purpose. The complex was synthetized in a manner similar to that described above. The temperature curve with paraffin ends at 124,5°, whereas the ceresin curve exceeds the melting point of

On thermal stability of complexes formed by urea with compounds.

urea and tends towards 141,0° (see above). Furthermore, the complex with cetane was investigated, where urea probably partly decays, and where the curve of solubility intersects the constancy curve of the complex at 99°. Besides, some qualitative observations concerning the forming of the complex were made. Thus ut was shown by the examples of urea complexes with ceresin that the melting point of urea (132,7°) by no means forms a limit for the existence of this complex, but that it is constant up to 141°.

ASSOCIATION: State Scientific Research- and Projecting Institute for the Nitrogen Industry.
PRESENTED BY: A.N. FRUMKIN, member of the Academy.
SUBMITTED: 28.11. 1956
AVAILABLE: Library of Congress.

CARD 3/3

YEFREMOVA, G.D. (Moscow); KOVPAKOVA, R.F.(Moscow)

Phase equilibria in systems containing ethylene and tetrachloroalkanes [with summary in English]. Zhur. fiz. khim. 32 no. 6:1231-1240 Je '58. (MIRA 11:8)

(Ethylene)
(Paraffins)
(Phase rule and equilibrium)

YEFREMOVA, G.D.

21(8) SOV/2809

PHASE I BOOK EXPLOITATION

Akademiya nauk SSSR. Otdeleniye khimicheskikh nauk

Termodinamika i stroyeniye rastvorov; trudy soveshchaniya... (Thermodynamics and Structure of Solutions; Transactions of the Conference Held January 27-30, 1958) Moscow, Izd-vo AN SSSR, 1959. 295 p. 3,000 copies printed.

Ed.: M. I. Shakhparonov, Doctor of Chemical Sciences; Ed. of Publishing House: M. G. Yegorov; Tech. Ed.: T. V. Polyakova.

PURPOSE: This book is intended for physicists, chemists, and chemical engineers.

COVERAGE: This collection of papers was originally presented at the Conference on Thermodynamics and Structure of Solutions sponsored by the Section of Chemical Sciences of the Academy of Sciences, USSR, and the Department of Chemistry of Moscow State University, and held in Moscow on January 27-30, 1958. A list of other reports and papers are listed in the Foreword. A list of other reports also read at the conference, but not included in this book, are given. Among the problems treated in this work are: electrolytic solutions, ultrasonic measurement, dielectric and thermodynamic properties of various mixtures, spectroscopic analysis, etc. References accompany individual articles.

5.(4)

AUTHORS: Krichevskiy, I. R., Yefremova, G. D. SOV/76-33-6-25/44

TITLE: Phase Equilibria in the Melamine-ammonia System (Fazovyye ravnovesiya v sisteme melamin - ammiak)

PERIODICAL: Zhurnal fizicheskoy khimii, 1959, Vol 33, Nr 6, pp 1328-1335 (USSR)

ABSTRACT: An interesting case of phase equilibrium (PE) in binary systems is the one where the critical curve and the solubility curve intersect (Ref 1). In both intersecting points P and Q, critical phenomena can be observed in saturated solutions in the presence of the solid phase $B_{(solid)}$ (Fig 1). The described (PE) occurs if the melting point of one component B lies considerably above the critical temperature (CT) of the other component A, and the solubility $B_{(solid)}$ in $A_{(liqu)}$ is low and decreases with the temperature. In such systems, there are two areas of pressure and temperature in which the three-phase equilibrium (TPE) of solid body - liquid - gas can be observed. Between these two areas, there is the area of two-phase equilibrium (TPE') of solid body - gas. The above-mentioned equilibrium is to be found in the melamine-ammonia system. As there is a

Card 1/3

considerable difference between the (CT) of ammonia (I) and the melting temperature of melamine (II), the (PE) was investigated by 3 different methods: In sealed glass ampules, by the dynamic method and by the inflexion of the pressure-temperature curves. The (TPE) of solid (II) - solution of (I) in liquid (II) - solution of (II) in gaseous (I), which occurs above the (CT) of (I), was studied by the last-mentioned investigation method (Fig 2 shows the device used). The (TPE') of solid (II) - gaseous solution was examined on a device designed by D. S. Tsiklis (Fig 4); the solubility and density of the solid (II) in gaseous (I) was measured at temperatures of 150-300° C and a pressure of 200-500 atmospheres. At the (CT) of the solution of solid (II) in liquid (I) (134° C), critical phenomena could be observed in the presence of solid (II). The second critical point of the equilibrium liquid - gas in the presence of solid (II) was determined: P ≈ 700 atm, t ≈ 245°C at a content of ≈ 50 % by weight of (II). Data on the solubility of (II) in (I) (Table 1), on the (CT) of the solution of (II) in liquid (I) (Table 2), on the (TPE) of the system (II) - (I) (Table 3), on the solubility of solid (II) in gaseous (I), and on the density of these solutions (Table 5),

as well as a space diagram drawn according to the data obtained of the (PE) of the system (II) - (I) (Fig 5), are presented. Finally, the authors express their thanks to D. S. Tsiklis, G. G. Leont'yeva, M. T. Filipov and R. O. Koroleva. There are 5 figures, 5 tables, and 11 references, 4 of which are Soviet.

ASSOCIATION: Gosudarstvennyy institut azotnoy promyshlennosti (State Institute of Nitrogen Industry)

SUBMITTED: October 25, 1957

S/064/60/000/006/010/011
B020/B054

AUTHORS: Yefremova, G. D. and Sorina, G. A.

TITLE: Phase- and Volume Relations in the System Ethylene - Butane

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 6, pp. 65-72

TEXT: The authors studied the phase equilibria, critical phenomena, and volume behaviors of liquid and gaseous solutions in the system ethylene - butane. They give the composition of bottled butane and ethylene, and describe their purification. The purity of ethylene and butane was determined on the basis of constant vapor pressures by an apparatus described earlier (Ref. 2). Fig. 1 shows the p = f(v) curves for an experiment in the system ethylene - butane. The authors measured the solubility of ethylene in liquid butane and the volumes of saturated liquid solutions at temperatures between 0 and 75°C. The solubility of liquid butane in gaseous ethylene was measured by the polythermic method (Ref. 10); for this purpose, data were needed on the relation volume - temperature - composition and on the relation pressure - temperature - composition. Fig. 2 shows the curve v = f(t) for ethylene - butane

Card 1/2

mixtures with 0.4 moles of ethylene. The data obtained were interpolated for equal temperatures; next, the isotherms for the liquid - gas equilibrium at temperatures between 25 and 100°C were plotted in volume - composition coordinates. The pressure in the heterogeneous system was also measured by an apparatus with visual reading. Fig. 4 shows the lines of constant pressures on the 25°C isotherm, Fig. 5 the liquid - gas equilibrium diagram for the ethylene - butane system in pressure - composition coordinates. Table 1 gives data on the phase equilibria and volumes of liquid and gaseous solutions in the ethylene - butane system. The compressibility of ethylene - butane mixtures was determined by an apparatus which is schematically shown in Fig. 6. The compressibility of four ethylene - butane mixtures of different compositions was measured by the method described. The authors determined the volume - composition isotherms-isobars in the ethylene - butane system. Table 4 gives the results of calculation of the volatility of butane in solution at the interface liquid - gas, and Table 5 the activity of ethylene in solutions in butane. I. R. Krichevskiy (Ref. 17) and Il'yinskaya are mentioned. There are 11 figures, 5 tables, and 20 references: 12 Soviet, 6 US, 1 German, and 1 French.

YEFREMOVA, G.D.; SORINA, G.A.

Phase and volume relations in the system ethylene - butane. Khim. prom. no. 6:503-510 S '60. (MIRA 13:11)
(Ethylene) (Butane)

86676

S/064/60/000/008/003/008
B020/B060

15.8112

AUTHORS: Yefremova, G. D., Leont'yeva, G. G.

TITLE: Solubility of Melamine in Solutions of Dicyano Diamide in Liquid Ammonia

PERIODICAL: Khimicheskaya promyshlennost', 1960, No. 8, pp. 8-9

TEXT: The solubility of melamine in ammoniacal solutions of dicyano diamide, being of particular importance in the first stage of continuous melamine production from dicyano diamide (Ref. 1), was studied in sealed glass ampoules by the method described in Ref. 2. The data obtained (Figs. 1 and 2) show the solubility of melamine to be dependent upon the concentration of dicyano diamide in liquid ammonia. For a dicyano diamide content of 9.2 g/100 g ammonia the solubility of melamine is little dependent on temperature; on a further increase of the dicyano diamide concentration in the solution a change is observed in the character of the solubility curve; with a rise of temperature also the melamine concentration in the solution rises. Fig. 2 shows that for dicyano diamide concentrations of about 14 g/100 g NH_3 the solubility of melamine is independent of

Card 1/2

86676

Solubility of Melamine in Solutions of Dicyano Diamide in Liquid Ammonia

S/064/60/000/008/003/008
B020/B060

temperature. Since in the synthesis of melamine from dicyano diamide by the continuous process the $H_4C_2N_4$ concentration in liquid ammonia is 50% and the temperature of the solvent is ~70°C, the melamine content in such a solution should not exceed 4%. It also follows from results that the sign of the solution heat changes with a rise of dicyano diamide concentration in the solution. There are 2 figures and 3 Soviet references.

Card 2/2

YEFREMOVA, G.D.; LEONT'YEVA, G.G.

Solubility of melamine in solutions of dicyandiamide in liquid ammonia. Khim.prom. no.8:626-267 D '60. (MIRA 13:12)
(Melamine) (Guanidine) (Ammonia)

KRICHEVSKIY, I.R.; YEFREMOVA, G.D.; PRYANIKOVA, R.O.; POLYAKOV, Yu.V.

Phase and volume relationships in the system acetic acid-butane. Khim. prom. no.7:499-502 Jl '61. (MIRA 14:7)
(Acetic acid)
(Butane)

YEFREMOVA, G.D.; MAKAREVICH, L.A.; SOKOLOVA, Ye.S.

Phase equilibria in the acetic acid - nitrogen system. Khim.prom. no.8:563-564 Ag '61. (MIRA 14:8)
(Nitrogen) (Phase rule and equilibrium)